PATENT SPECIFICATION (11) 1 284 403

DRAWINGS ATTACHED

1 284 403

(21) Application Nos. 37895/68 (22) Filed 8 Aug. 1968
23945/69 10 May 1969

(23) Complete Specification filed 5 Aug. 1969

(45) Complete Specification published 9 Aug. 1972

(51) International Classification B01D 27/00 29/10

(52) Index at acceptance
B1D 1B1 1B2 1B4 2J1B2 2J1C3 2J1D 2K1

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(54) IMPROVEMENTS IN AND RELATING TO FILTERING APPARATUS

(71) We, EXSOL SERVICES LIMITED, a British Company, of 4 Horsefair Street, Leicester, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to filtering apparatus and is especially, but not exclusively, suitable for use in connection with equipment for cleaning garments, household textiles and so forth, in which a liquid medium requires to be treated for the removal of impurities, dirt, grease and solids, or any other matter which may be contained.

The invention provides a filter assembly comprising inner and outer concentric perforate tubular members supported on a first end plate and defining between them an annular space suitable for reception of a body of granular filtering medium, said end plate extending radially outwardly beyond said outer perforate member to support one or more annular filter elements which is or are located around said outer perforate member and which forms or form the outer periphery of the assembly, the assembly being closed by a detachable second end plate or cap enabling removal and replacement of such filter element or elements, at least one of said end plates being provided with an opening in alignment with said inner perforate member to permit flow of liquid through the assembly.

Preferably a perforate casing or cover surrounds and forms part of the or each replaceable filter element. Preferably also said detachable end cap has a raised central portion adapted to engage over said outer perforate member and to be retained by means of a wire handle passing through cooperating apertures in the vertical edges of said central portion and in the upper end of said outer perforate member.

In use, the liquid medium to be treated is caused to pass through the annular filter elements and the outer perforate member into the granular material, and finally through the inner perforate member and hence out of the assembly. The annular filter elements can be withdrawn axially after the end cap has been removed, and the elements replaced by clean ones without interfering with the other components of the assembly.

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawing which is a vertical sectional elevation of one form of filter assembly according to the invention.

Referring to the drawing, the filter assembly includes a cylindrical base plate A to which is secured an outer perforated cylindrical member C and an inner open-ended tubular member E of wire gauze construction which passes axially through the outer member C. The space between the outer member C and the tube E is packed with carbon granules F, and a felt or similar plug H is inserted above the granules.

Around the outer member C two removable and replaceable filter elements G, G1 are fitted, abutting against each other endwise; they consist of lengths of pleated paper attached to and held in generally cylindrical contour by end rings (not shown). The filter elements are a sliding fit around the outer member C, and each element incorporates an outer casing or covering M, M1 of perforated oil-board or similar material. The filter elements G, G1 form the outer periphery of the filter assembly.

The assembly is completed by a detachable end cap N and handle O, the central portion of the cap being raised to provide a means of locating the ends of the handle, the inturned ends of which pass through holes in the central portion of the cap and

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in the upper end of the member C. In this way the end cap N is removable to enable access to be had to the internal parts as and when required. It will be seen that the base A and end cap N are provided with inturned peripheral flanges which locate over the ends of the associated filter elements G and G1.

The construction of the embodiment is such that when the filter becomes clogged only the removeable filter elements G, G1 need be changed; the metal part of the unit is not scrapped but can be used again. Moreover the carbon granular core can also be used again, since this has a longer life than the filter elements and can serve for several changes of the filter elements. In addition the carbon core can be changed independently of the filter elements or the type of carbon used can be varied to meet changes of conditions.

Certain features of the equipment described above form the subject matter of our co-pending Application No. 6203/72 Serial No. 1 284 404.

WHAT WE CLAIM IS:—

1. A filter assembly comprising inner and outer concentric perforate tubular members supported on a first end plate and defining between them an annular space suitable for reception of a body of granular filtering medium, said end plate extending radially outwardly beyond said outer perforate member to support one or more annular filter elements which is or are located around said outer perforate member and which forms or form the outer periphery of the assembly, the assembly being closed by a detachable second end plate or cap enabling removal and replacement of such filter element or elements, at least one of said end plates being provided with an opening in alignment with said inner perforate member to permit flow of liquid through the assembly.

2. A filter assembly according to Claim 1 wherein the or each removable filter element is provided with a perforate outer cover or casing surrounding and forming part of the element and forming the outer periphery of the filter assembly.

3. A filter assembly according to Claim 1 or 2 wherein said detachable end cap has a raised central portion adapted to engage over said outer perforate member and to be retained by means of a wire handle passing through co-operating apertures in the vertical edges of said central portion and in the upper end of said outer perforate member.

4. A filter assembly according to any preceding claim having more than one removeable filter element in which the elements abut against each other endwise.

5. A filter assembly substantially as hereinbefore described with reference to the accompanying drawings.

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Printed for Her Majesty's Stationery Office by The Tweeddale Press Ltd., Berwick-upon-Tweed, 1972.
Published at the Patent Office, 25 Southampton Buildings, London WC2A 1AY from which copies may be obtained.

1,284,403 COMPLETE SPECIFICATION
1 SHEET